IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: PETER LAND

FOR: METHOD FOR THE PASTEURISATION OF DRINKS, IN PARTICULAR BEER

PRELIMINARY AMENDMENT

"Express Mail" mailing label number EL799009 5 US
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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.
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Jennifer Matson
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BOX PCT
The Assistant Commissioner of
Patents and Trademarks
Washington, DC 02031

Sir:

Prior to the Examiner acting in the above-referenced application, please preliminary amend the specification and claims as follows:

IN THE SPECIFICATION:

Please delete the following paragraphs:

Page 1, fifth paragraph which reads as:

"**Definition of the pasteurisation units (PU)**".

Page 3, second paragraph which reads as:

"**Existing methods (thermal steady-state)**".

Please insert the following section title before the third complete paragraph on page 4.

--Brief Summary of the Invention--.

Please insert the following section title before the last paragraph on page 5.

--Brief Description of the Drawings--.

Please insert the following section title after the second paragraph on page 6, that is, immediately before the text, "Reference is first made to Fig.1".

--Detailed Description of the Invention--.

Please accept the following paragraph in re-written "clean form". The following paragraphs are presented as a replacement for the existing first paragraph on page 1.

--Field of the Invention

The present invention relates to a method for the pasteurisation of drinks, in particular beer.

Description of the Related Art

The purpose of pasteurisation is to establish biological stability by killing micro-organisms that may be present in the beer as completely as possible without any adverse effect on the quality of the product.--

Please accept the following paragraph in re-written "clean form". This paragraph is the second paragraph from the bottom on page 2 of the specification.

-- In this, 1 PU (Pasteurisation Unit) is defined as the degree of annihilation achieved by a heat holding time of 1 minute at 60°C. Strictly speaking, however, this only applies to micro-organisms which also correspond to a z-value of 6.95, but this is unfortunately neglected in the numerical equation.--

Please accept the following paragraph in re-written "clean form". This paragraph is the third paragraph on page 4 of the specification.

--This objective is achieved by a method for the pasteurisation of drinks according to the invention. In the method, a flow volume of the product is heated above a pasteurisation temperature and then cooled again before it is filled into its containers at a

heating phase. Immediately after the heating phase that lasts until a previously calculated maximum temperature has been reached, a cooling phase in which the temperature of a product decreases is commenced, such that a maximum quantity of pasteurisation units (PU) to be applied for the pasteurisation of the specific product is first computed, and the temperature variation in the heating phase, the length of the heating phase, and the temperature variation and length of the cooling phase, are then chosen so that during pasteurisation, the number of pasteurisation units previously calculated corresponds to the total number of pasteurisation units actually applied during the heating and cooling phases.--

IN THE CLAIMS:

Please cancel claims 1-8 without prejudice.

Please enter the following newly added claims 9-20.

Claim 9. (Newly Added) A method for the pasteurisation of drinks, comprising a heating phase in which a flow volume of a drink product is heated above a pasteurisation temperature and a cooling phase in which the heated drink product is cooled before being filled into a container, wherein the cooling phase is commenced immediately after a previously calculated maximum temperature has been reached in the heating phase, and wherein a maximum quantity of pasteurisation units (PU) to be applied for the pasteurisation of the drink product is computed, and then a temperature variation and length of the heating phase, and a temperature variation and length of the cooling phase are chosen, such that during pasteurisation, the number of pasteurisation units previously calculated corresponds to the total number of pasteurisation units actually applied during the heating and cooling phases.

Claim 10. (Newly Added) A method for the pasteurisation of drinks according to Claim 1, wherein the pasteurisation unit is defined as:

$$PU = t_h * 1{,}393^{(9h-92)}$$

wherein t_h represents heat holding time, ϑh represents heat holding temperature, and $\vartheta 2$ represents pasteurisation temperature, respectively.

Claim 11. (Newly Added) A method for the pasteurisation of drinks according to Claim 1, wherein the time length of the heating phase in a temperature range within which pasteurisation takes place is shorter than that of the cooling phase.

Claim 12. (Newly Added) A method for the pasteurisation of drinks according to Claim 1, wherein in the heating phase a stream of the drink product is heated in a recuperator by heat transfer from outflowing the product stream.

Claim 13. (Newly Added) A method for the pasteurisation of drinks according to Claim 1, the heating phase includes a first heating phase in which heating lasts until the temperature of the drink product reaches just above the pasteurisation temperature, and a second heating phase in which heating lasts until the temperature of the drink product reaches the calculated maximum temperature.

Claim 14. (Newly Added) A method for the pasteurisation of drinks according to Claim 13, wherein the second heating is performed by a medium with a higher temperature than that of the drink product.

Claim 15. (Newly Added) A method for the pasteurisation of drinks according to Claim 14, wherein the medium includes hot water and steam.

Claim 16. (Newly Added) A method for the pasteurisation of drinks according to Claim 13, wherein a first heater is used in the first heating phase, and a second heater is used in the second heating phase.

Claim 17. (Newly Added) A method for the pasteurisation of drinks according to Claim 16, wherein the first heater is a recuperator.

Claim 18. (Newly Added) A method for the pasteurisation of drinks according to Claim 12, wherein the cooling during the cooling phase partially takes place in the recuperator, with the outflowing drink product stream to be cooled flowing counter-current to the inflowing drink product stream to be heated.

Claim 19. (Newly Added) A method for the pasteurisation of drinks according to Claim 1, wherein the drink product stream is cooled in a heat exchanger by means of an outside medium.

Claim 20. (Newly Added) A method for the pasteurisation of drinks according to Claim 1, wherein the drink product includes beer.

IN THE ABSTRACT

Please accept the following Abstract of the Disclosure in re-written "clean form".

--ABSTRACT OF THE DISCLOSURE

The present invention relates to a method for the pasteurisation of drinks, in particular beer, by thermal treatment, in which before being filled into its containers a flow volume of the product is heated above a pasteurisation temperature and then cooled again, such that immediately after a heating phase which lasts until a previously calculated maximum temperature has been reached, the cooling phase with decreasing product temperatures is commenced. In the method according to the invention there is no heat holding period during which the temperature is held constant. The method enables a high product temperature to be reached without exceeding the limits specified for the pasteurisation units applied.--

REMARKS

Applicant requests entry of the above-identified amendments which conform the claims to U.S. practice. No new matter is being introduced by this Amendment as antecedent support is set forth in the specification and the original claims.

Prosecution on the merits is respectfully requested.

The Examiner is invited to contact the Applicant's attorneys directly at the below-listed telephone number regarding this preliminary amendment or otherwise concerning the present application.

If there are any charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

Respectfully submitted,

PETER LAND

CANTOR COLBURN LLP
Applicant's Attorney

By: _____
Daniel F. Drexler
Registration No. 47,535
Customer No. 23413

Date: April 12, 2001
Tel: 860-286-2929

Version with Markings to Show Changes Made

A marked up version of the paragraph replaced on page 2 follows:

"Field of the Invention

The present invention relates to a method for the pasteurisation of drinks, in particular beer[, according to the pre-characterising portion of Claim 1].

Description of the Related Art

The purpose of pasteurisation is to establish biological stability by killing micro-organisms that may be present in the beer as completely as possible without any adverse effect on the quality of the product."

A marked up version of the paragraph replaced on page 2 follows:

"In this, 1 PU (Pasteurisation Unit) is defined as the degree of annihilation achieved by a heat holding time of 1 minute at 60°C. Strictly speaking, however, this only applies to micro-organisms which also correspond to a z-value of 6.95, but this is unfortunately neglected in the numerical equation."

A marked up version of the paragraph replaced on page 4 follows:

"This objective is achieved by a method for the pasteurisation of drinks according to the invention [to the invention for the pasteurisation of drinks, in particular beer, having the characteristic features of the principle claim]. In the method, a flow volume of the product is heated above a pasteurisation temperature and then cooled again before it is filled into its containers at a heating phase. Immediately after the heating phase that lasts until a previously calculated maximum temperature has been reached, a cooling phase in which the temperature of a product decreases is commenced, such that a maximum quantity of pasteurisation units (PU) to be applied for the pasteurisation of the specific product is first computed, and the temperature variation in the heating phase, the length of the heating phase, and the temperature variation and length of the cooling phase, are then chosen so that during pasteurisation, the number of pasteurisation units previously calculated corresponds to the total number of pasteurisation units actually applied during the heating and cooling phases."

A marked up version of the Abstract on page 12 follows:

"[Abstract (Fig. 1)] ABSTRACT OF THE DISCLOSURE

The present invention relates to a method for the pasteurisation of drinks, in particular beer, by thermal treatment, in which before being filled into its containers a flow volume of the product is heated above a pasteurisation temperature and then cooled again, such that immediately after a heating phase [(30)] which lasts until a previously calculated maximum temperature [(33)] has been reached, the cooling phase [(34)] with decreasing product temperatures is commenced. In the method according to the invention there is no heat holding period during which the temperature is held constant. The method enables a high product temperature to be reached without exceeding the limits specified for the pasteurisation units applied."